Diagnostic Electrocardiography (DSAE 1340)

Credit: 3 semester credit hours (3 hours lecture, 1 hour lab)

Prerequisite/Co-requisite: Passed all previous general and/or cardiac Sonography courses.

Course Description
Cardiac testing including the techniques and interpretation of patient physical assessment. Covers electrocardiography, stress testing, Holter monitoring, vital signs, and cardiovascular pharmacology.

Required Textbook and Materials
1. The Notebook 6.5; Echocardiography From a Sonographer’s Perspective by Susan DeWitt, BS, RDCS, RCS; WWW.echonotebook.com
2. The Workbook 6.5; Echocardiography From a Sonographer’s Perspective by Susan DeWitt, BS, RDCS, RCS; WWW.echonotebook.com

Course Objectives
Upon completion of this course, the student will be able to:
1. Demonstrate a non-invasive cardiac testing procedure Perform a physical exam to include vital signs and patient history
2. Identify and interpret basic dysrhythmias
3. Describe treatment methods including pharmacology agents
4. Identify indications, contraindications, action, and side effects of generic and brand name cardiovascular drugs

Course Outline
A. Conduction system of the heart
   a. Sa node
   b. Av node
   c. Bundle of His
   d. Bundle branches
   e. Purkinje fibers
B. Electrophysiology
   a. Electrical events
   b. Mechanical events
   c. Depolarization
   d. Repolarization
C. Basic electrocardiography
   a. Waveform components
   b. EKG segments
   c. EKG intervals
D. Electrocardiography interpretation

Approved 1/2014
a. What the boxes mean
b. Normal values
c. Arrhythmias
E. Halter monitors
F. Chest X-ray
G. Cardiac Angiography and Heart Catheterization
H. Radionuclide studies
I. Other tomographic imaging procedures
J. Pressures
   a. Right side
   b. Left side
   c. Blood pressure
   d. Wigger’s diagram
K. Phases of the cardiac cycle
   a. IVCT
   b. Systole
   c. IVRT
   d. Diastole
L. Normal heart sounds
M. Phonocardiography and external pulse recording
   a. Murmurs
   b. Regurgitation
   c. Stenosis
I. M-mode
   a. Measurements
   b. Valve motion/disease
   c. Wall motion
   d. Chamber
J. 2D measurements
J. Coronary circulation
K. Wall motion
L. Maneuvers
   a. Theory and use of provocative stress agents
      a. Exercise
      b. Positions
      c. Respiration
      d. Cardiovascular Pharmacology
      e. Potential effects of Cardiac Medications on echocardiographic findings
M. Stress testing
   a. Non-pharmacology
   b. Pharmacology
N. Cardiovascular surgery and Interventional cardiology
   a. Bypass
   b. Stents
   c. Pacemakers
DSAE 1340
Course Syllabi

d. Post-Operative Repair

O. Embryology
a. Heart development
b. Fetal circulation
  i. Foramen ovale
  ii. Ductus arteriosus
  iii. Ductus venosus
  iv. Placenta
  v. Pressures
c. Changes at birth
d. Persistent fetal circulation

Grade Scale

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 – 100</td>
<td>A</td>
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<tr>
<td>85 – 92</td>
<td>B</td>
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<tr>
<td>75 – 84</td>
<td>C</td>
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<tr>
<td>68 - 74</td>
<td>D (not passing)</td>
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<td>73.5 or below</td>
<td>F</td>
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Course Evaluation
Semester grades will be calculated from unit tests, homework and lab participation grades.

Course Requirements
1. Unit tests (70%)
2. Homework (5%)
3. Lab assignment (25%)

Course Policies
1. No food, drinks, or use of tobacco products in class.
2. Beepers, cell phones, head phones and any other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. If a unit test is missed, arrangements will be made with the instructor to take the test in a timely manner.
5. Attendance Policy: Absences must be limited to serious illness and/or immediate family emergencies. Unexcused absences are not allowed. **Three (3) absences will result in a letter grade reduction. Excessive tardiness (more than 10 minutes/class or more than 2 consecutive classes) will result in an absence being awarded.** In the event that LIT is forced to cancel classes due to inclement weather, DMS classes and clinical rotation will also be canceled. Notification of closures will be made through local radio and TV stations. Students out of the immediate broadcast area should contact the Program Director for information.
is extremely important that students communicate with the faculty regarding absences by telephone and/or email at all times.

6. All assignments are due when stated. Late assignments will result in a drop of 10 points per late day, and more than five days past due will result in a grade of 0. If a student has an excused absence with written documentation, assignments will be accepted at the beginning of class upon return. Missed in-class assignments receive a grade of 0.

7. Cheating on any (lecture/lab) exam results in immediate dismissal from the program and an F for the course.

8. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

Disabilities Statement
The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Conduction system of the heart</td>
<td>The Notebook: pgs. 30-31</td>
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<tr>
<td>Week 2</td>
<td>Electrophysiology</td>
<td>The Notebook: pgs. 30-31</td>
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<td>Handouts</td>
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<td>Week 3</td>
<td>Basic electrocardiography</td>
<td>The Notebook: pgs. 32-33</td>
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<td>Handouts</td>
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<td>Week 4</td>
<td>Electrocardiography interpretation</td>
<td>The Notebook: pgs. 32-33</td>
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<td>Handouts</td>
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<td>Week 5</td>
<td>Phases of the cardiac cycle</td>
<td>The Notebook: pgs. 21-24, 33</td>
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<td>Week 6</td>
<td>Test 1</td>
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<td>Week 7</td>
<td>Pressures</td>
<td>The Notebook: pgs. 3, 33, 161</td>
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<td>Week 8</td>
<td>Normal heart sounds</td>
<td>The Notebook: pgs. 21-22, 33</td>
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<td>Week 9</td>
<td>Phonocardiography</td>
<td>Handouts</td>
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<td>Week 10</td>
<td>M-mode</td>
<td>The Notebook: pgs. 80-81</td>
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<td>Handouts</td>
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<td>Week 11</td>
<td>Walls</td>
<td>The Notebook: pgs. 138-139, 141</td>
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<td>Handouts</td>
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<td>Week 12</td>
<td>Maneuvers</td>
<td>The Notebook: pgs. 29</td>
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<td>Handouts</td>
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Week 13: Test 2

Week 14: Stress testing
The Notebook: pgs. 137-155

Week 15: Embryology
The Notebook: pgs. 37-48
Handouts

Week 16: Test 3

Contact Information
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E-mail: mamann@lit.edu
Office hours: Varies and by appointment